

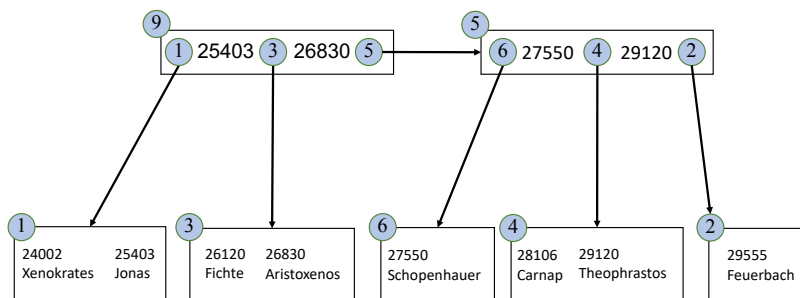
Exercise for *Database System Concepts for Non-Computer Scientist* im
WiSe 19/20

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<http://db.in.tum.de/teaching/ws1920/DBSandere/?lang=en>

Sheet 11

Exercise 1

Consider the ISAM example from the lecture:



Determine how many pages have to be accessed for the following queries in the example ISAM.

- (a) `select * from Students;`
- (b) `select * from Students where studNr = 28106;`
- (c) `select * from Students where name = 'Carnap';`

Exercise 2

Index structures are great to reduce the number of accessed pages. Let's assume a larger example with 1 million students that are all stored in an ISAM. The index pages of the ISAM can hold 2 separator keys (student numbers), as in the example. The data pages of the ISAM can hold 100 student tuples, unlike in the example where we only stored up to 2 student tuples on each data page. Calculate how many pages have to be accessed in the worst case for a scan query:

```
select * from Students;
```

and any primary key lookup / point query:

```
select * from Students where studNr = ???;
```